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Architecture due diligence

Feds search for ways to match agency IT blueprints with OMB requirements

BY Brian Robinson
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The Clinger-Cohen Act of 1996 requires federal agencies to build information technology enterprise architectures to better plan and understand the impact of their technology investments, but compliance has so far been mixed.

The Defense Department and a handful of civilian agencies are well advanced in their efforts to develop IT blueprints, but others have barely begun.

That should soon change, however. For fiscal 2004 budget requests, the Office of Management and Budget will require that agencies not only have their enterprise architectures defined, but that they also comply with the requirements of an ambitious new federal enterprise architecture (FEA) that OMB is developing.

Agency chief information officers and IT architects will have to make sure that agency architectures agree with federal architecture requirements.

"All leaders in the government IT arena have to realize that the FEA will be a real thing," said Michael Tiemann, who for several years helped guide the government's architecture developments as co-chairman of the CIO Council's Federal Architecture and Infrastructure Working Group. He joined AT&T Government Solutions as a principal for enterprise architecture.

"It's conceptual right now, but as the e-government capabilities of the federal government grow, an FEA instantiation with things like Web services will become common and agencies

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will be required to use [those FEA] components," he said.

An enterprise architecture describes all of the IT resources within an agency and how they relate to the business processes that define the agency's mission and the information flows that result. Once the architecture is fully developed, agency managers should be able to pinpoint technology strengths, weaknesses and redundancies and preview the likely outcome of IT investments.

The federal enterprise architecture will attempt to do the same for the whole federal government. Leaving out those functions that are unique to particular agencies, it will show what business processes are common across government, what duplications of technology exist, what interagency collaborations can be promoted and how communication among agencies can be improved.

The federal enterprise architecture is being constructed using a collection of interrelated reference models, which are sets of frameworks that define and categorize various functions the government uses to operate and do business. Agencies have to make sure their own architecture models are compatible with those reference models when appropriate, a task that may be easier for agencies in the early stages of architecture development.

"Agencies that are in the process of putting their enterprise architectures together absolutely should consider the OMB FEA requirements right from the beginning," said Susan Warshaw, chief IT architect at the Treasury Department's Bureau of Printing and Engraving. "But they need to consider the most flexible way possible of storing and retrieving [architecture model and diagram] data, so at a minimum they need to think of using [Extensible Markup Language]-based repositories."

That is the approach the bureau followed for its enterprise architecture, which was developed in just one year using the Metis visual modeling toolset from Computas NA Inc. Because Metis uses XML to collect and store data, the bureau "was not stuck with the [proprietary] data format that other tool vendors bring with them," Warshaw said.

Metis allows for interrelationships between various models of enterprise architectures. Warshaw says that should make it relatively easy for the bureau to take each of the federal enterprise architecture reference models as they are introduced and map the business processes in its own enterprise architecture model to those in the federal enterprise architecture models just by redrawing the relationships.

The bureau is a fairly small organization, however, and the compatibility issues of larger organizations are more complex. For example, the National Oceanic and Atmospheric Administration has five line offices, each with its own enterprise architecture issues and all of which have to interface through NOAA's overall architecture with the Commerce Department's enterprise architecture.

NOAA has worked for four years on its enterprise architecture, said Ira Grossman, the agency's IT architect, and it could be another two years before it can be called mature and the

architecture is linked with all of the appropriate planning and decision-making processes.

"My principal concern is to create an enterprise architecture that allows for sound investment and planning decisions to be made in NOAA and the Department of Commerce, and then it's our intention to interface seamlessly" with the federal enterprise architecture, he said. "But I'm not sure that OMB itself knows right now how the FEA will evolve."

For example, the Service Component Reference Model of the federal architecture is too generalized for many federal agencies to be able to comply with, Grossman said. It's too business-oriented and leaves out, for example, much of NOAA's focus on research and the environment, he said.

This is only the "first cut" of OMB's attempt at the federal enterprise architecture, Grossman said, and "if OMB listens to the comments they receive," he expects the second or third version to provide something that agencies can work with much more easily.

Like Warshaw, Grossman thinks XML will be a major factor in making architecture models compatible. In the meantime, NOAA is starting to use a graphical modeling tool to give it a more expansive understanding of its architecture issues. It will be up to the tool vendor to develop the interfaces to the federal enterprise architecture reference models so that NOAA can export the elements OMB asks for, Grossman said.

That may be the way many agencies go, said Ray Bjorklund, vice president of market intelligence and chief knowledge officer for Federal Sources Inc.

"It could be a long time, perhaps as long as 10 years, before there is a complete understanding [in the federal government] of what an enterprise architecture really means, though by this time next year, OMB may be able to declare a certain amount of success," Bjorklund said. "In the meantime, those agencies that do see the importance of an architecture now and see the complexities involved are going out to select an outside contractor [that] is knowledgeable about architectures and tools."

DOD and some other agencies are much further along than most in the government, said Jan Popkin, founder and chief executive officer of Popkin Software. For the rest of government, enterprise architecture development is still an evolving area and agencies are increasingly looking to vendors for help. Agency spending on enterprise architectures is expected to increase to more than $1 billion this year according to OMB, Popkin said.

Once the federal enterprise architecture reference models are fully defined, AT&T's Tiemann doesn't think it will be hard for agencies to comply with the federal models.

"OMB expects that the final version of the FEA will incorporate and consolidate all of what the agency architectures include," he said. "But, in the meantime, agencies should...do what they have to do with their own architectures, while also being cognizant of the need to eventually agree with the FEA." n

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